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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/967,084	09/28/2001	Niels Beier	42390.P12323	6640

7590 03/24/2005

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EXAMINER

WON, MICHAEL YOUNG

ART UNIT	PAPER NUMBER
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2155

DATE MAILED: 03/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

*Office Action Summary*

Application No.

09/967,084

Applicant(s)

BEIER ET AL.

Examiner

Michael Y Won

Art Unit

2155

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 22-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 22-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to..
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7-3-03 & 6-21-04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

1. Claims 1-11 and 22-32 have been examined and are pending with this action.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 8, 9, 22-24, 26, 30-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Kerr et al (US 6,243,667 B1).

As per claims 1 and 22, Kerr teaches a method and a machine-readable medium having stored thereon data representing instructions that, if executed by one or more processors of a network device, cause the one or more processors to perform the method comprising: receiving a packet at a network device (see col.3, lines 55-56), the packet including a header (see col.3, lines 58-59) and a payload (implicit); tagging the packet, by a first packet-processing application of a plurality of packet processing applications, with a cache lookup key based upon original contents of the header, the cache lookup key indicating where in a unified cache a cache entry corresponding to the

packet will be stored (see col.3, lines 65-67; col.4, lines 8-11; and col.6, lines 32-41 & 50-53); and those of the plurality of packet-processing applications attempting to access the cache entry from the unified cache subsequent to the tagging by the first packet-processing application using the cache lookup key rather than generating a new cache lookup key based upon current contents of the header (see col.4, lines 1-7).

As per claims 2 and 23, Kerr further teaches wherein said tagging the packet with a cache lookup key comprises populating a lookup key field of an internal packet descriptor corresponding to the packet with a hash value (see col.4, lines 8-11).

As per claims 3 and 24, Kerr teaches wherein the packet comprises an Internet Protocol (IP) packet and the cache lookup key is based upon a source IP address of the header, a destination IP address of the header, a source port of the header, a destination port of the header, and a protocol value in the header (see col.3, lines 3-5 & 58-65).

As per claim 8, Kerr teaches a method comprising the steps of a step for determining whether a cache lookup key is present in a packet descriptor associated with a received packet (see col.3, line 65-col.4, line 7); a step for performing a lookup in a unified cache with the cache lookup key if it is determined that the cache lookup key is present in the packet descriptor (see col.4, lines 1-2); a step for creating a new cache entry in the unified cache based upon information in a header of the received packet and tagging the packet if it is determined that the cache lookup key is not present in the packet descriptor or the lookup does not locate an appropriate existing cache entry (see

col.4, lines 2-5); and a step for updating an existing cache entry with module-specific information (see col.8, lines 45-49).

As per claims 9 and 30, Kerr further teaches wherein the unified cache is implemented as a hash table and tagging the packet comprises generating a hash value based upon at least a source address and a destination address in the header and storing the hash value in the packet descriptor (see col.3, lines 58-65; col.4, lines 8-11; and col.10, lines 41-48).

As per claim 26, Kerr further teaches wherein the plurality of packet-processing applications are distributed among at least two processors of the network device (see Fig.1, #140 & #540).

As per claim 31, Kerr further teaches wherein the network device comprises a router (see abstract and col.1, lines 18-19).

As per claim 32, Kerr further teaches wherein the network device comprises a switch (see col.1, lines 18-19).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 4, 5, 10, 25, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kerr et al (US 6,243,667 B1) in view of Reid et al. (US 6,182,226 B1).

As per claims 4, 10, 25, and 27, Kerr teaches all the limitations including wherein the plurality of packet-processing applications includes applying packet filtering (see col.6, lines 50-53) and packet routing or forwarding (see col.1, lines 58-61), but he does not explicitly teach wherein the plurality of packet-processing applications includes applying one or more of Network Address Translation (NAT). Reed teaches of packet-processing applications includes applying one or more of Network Address Translation (NAT) (see col.6, lines 47-52). It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the teachings of Reed within the system of Kerr by implementing Address Translation (NAT) because Kerr teaches that in embodiments where the data packets are saved, it would be desirable to perform a name/address translation (see Kerr: col.10, lines 13-19).

As per claim 5, Kerr further teaches wherein the plurality of packet-processing applications are distributed among two or more processors of the network device (see claim 26 rejection above).

#### ***Allowable Subject Matter***

4. Claims 6-7, 11 and 28-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Prior art of record does not explicitly disclose, teach, or suggest wherein the first packet-processing application comprises a NAT process that modifies the header of the packet, and wherein the method further comprises the NAT process initiating a second packet-processing application of the plurality of packet-processing applications and providing the tagged packet to the second packet-processing application as recited in claim 6. Claim 7 depends on claim 6 and thus would be allowable if claim 6 is rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Prior art of record does not explicitly disclose, teach, or suggest of a step for conveying the cache lookup key from the NAT packet-processing task to the packet filtering packet-processing task as recited in claim 11.

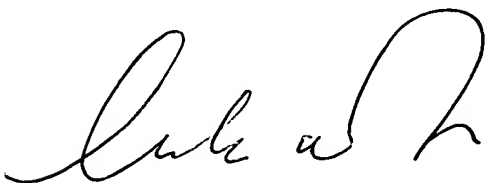
Prior art of record does not explicitly disclose, teach, or suggest wherein the first packet-processing application comprises a NAT process that modifies the header of the packet, wherein the instructions further cause the one or more processors to: provide the tagged packet to a second packet-processing application of the plurality of packet-processing applications; and initiate the second packet-processing application of the plurality of packet-processing applications subsequent to the NAT process as recited in claim 28. Claim 29 depends on claim 28 and thus would be allowable if claim 28 is rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Y Won whose telephone number is 571-272-3993. The examiner can normally be reached on M-Th: 7AM-5PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain T Alam can be reached on 571-272-3978. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael Won



March 17, 2005

  
**HOSAIN ALAM**  
**SUPERVISORY PATENT EXAMINER**